

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A balloon adapted to be mounted on a catheter and to receive a stent having proximal and distal ends, the balloon comprising:

proximal and distal cones,

proximal and distal ends, respectively adjacent to the proximal and distal cones, and adapted for being mounted to the catheter,

an intermediate body between the proximal and distal cones and configured to receive a stent thereon, the intermediate body having a proximal region configured to receive the stent proximal end, and a distal region configured to receive the stent distal end, and

at least one circumferential groove formed on the balloon wall between one of the intermediate body proximal and distal regions and the respective proximal and distal cone for mechanically disengaging the respective cone from the intermediate body allowing each to move differently in a radial direction,

wherein said at least one circumferential groove is present when the balloon is in both an inflated state and a deflated state, and ~~said at least one circumferential groove has~~ imparts a smaller diameter to the balloon than does ~~that of~~ the intermediate body, ~~and that of the~~ respective cone, when the balloon is in ~~an~~ the inflated state.

Claim 2 (original): The balloon of claim 1, wherein the at least one circumferential groove has a shape, in longitudinal cross-section, selected from C-shapes, U-shapes, W-shapes, open-sided polygons, and combinations thereof.

Claim 3 (previously presented): The balloon of claim 1, wherein the at least one circumferential groove is formed adjacent at least one of the proximal and distal cones such that balloon diameters measured distal and proximal to the at least one circumferential groove are unequal.

Claim 4 (original): The balloon of claim 1, wherein the at least one circumferential groove is at least partially filled with a flexible material that is adhered to the balloon.

Claim 5 (original): The balloon of claim 4, wherein the flexible material comprises foamed material.

Claim 6 (currently amended): A catheter comprising:
an elongate shaft having a lumen there through; and
a balloon adapted to receive a stent having proximal and distal ends, and mounted about a distal region of the shaft in fluid communication with the lumen, the comprising:
an intermediate body for receiving a the stent thereon, the intermediate body having a proximal region configured to receive the stent proximal end, and a distal region configured to receive the stent distal end,
proximal and distal cones,
proximal and distal ends, respectively adjacent to the proximal and distal cones, and attached to the shaft,
proximal and distal transitions between the intermediate body proximal and distal regions and the proximal and distal cones, respectively, and
a distal circumferential groove formed adjacent the distal transition, the distal circumferential groove mechanically disengaging the distal cone from the intermediate body allowing each to move differently in a radial direction,
wherein said distal circumferential groove is present when said balloon is in both an inflated state and a deflated state, and ~~said distal circumferential groove has~~ imparts a smaller diameter to the balloon than does ~~that of the intermediate body, and that of the respective cone,~~ when the balloon is in the an inflated state.

Claim 7 (previously presented): The catheter of claim 6 further comprising a proximal circumferential groove formed on the balloon wall adjacent the proximal transition.

Claim 8 (previously presented): The catheter of claim 7, wherein the balloon is capable of being partially inflated around the shaft such that the proximal and distal cones each have partially inflated profiles that are larger than a deflated profile of the intermediate body.

Claim 9 (previously presented): The catheter of claim 8, wherein during balloon inflation, the proximal and distal circumferential grooves form proximal and distal steps in diameter, respectively, between the deflated profile of the intermediate body and the partially inflated profiles of the proximal and distal cones.

Claim 10 (currently amended): A stent delivery catheter comprising:
an elongate shaft having a lumen there through, and having a distal region;
a balloon expandable stent, mounted about said intermediate body, and having proximal and distal ends; and
a balloon mounted about a the distal region of the shaft and being in fluid communication with the lumen, the balloon comprising,
an intermediate body on which the stent is mounted,
proximal and distal cones,
proximal and distal ends, respectively adjacent to the proximal and distal cones, and attached to the shaft, and
a first circumferential groove formed between one of the proximal and distal ends of the stent and a respective one of the proximal and distal cones such that the first circumferential groove mechanically disengages the one of the respective proximal and distal cones from the respective proximal and distal ends of the stent allowing each to move differently in a radial direction,
wherein said first circumferential groove is present when the balloon is in both an inflated state and a deflated state, and ~~said first circumferential groove has~~ imparts a smaller diameter to the balloon than ~~that of~~ does the intermediate body, ~~and that of the respective cone,~~ when the balloon is in ~~an~~ the inflated state.

Claim 11 (previously presented): The stent delivery catheter of claim 10 further comprising a second circumferential groove formed of the balloon wall adjacent a transition

between the other of the proximal and distal ends of the stent and the other of the proximal and distal cones.

Claim 12 (original): The stent delivery catheter of claim 10, wherein the first circumferential groove is at least partially filled with a flexible material that is adhered to the balloon.

Claim 13 (previously presented): The stent delivery catheter of claim 12, wherein the flexible material forms a first dam to help retain the stent on the balloon.

Claim 14 (previously presented): The stent delivery catheter of claim 11, wherein, when the balloon is deflated, the proximal and distal cones each have partially inflated profiles that are larger than a deflated profile of the intermediate body such that the proximal and distal cones form proximal and distal dams, respectively, to retain the stent on the balloon.

Claim 15 (previously presented): A method of making a stent delivery catheter comprising:

providing a catheter having an elongate shaft with a lumen there through;

mounting a balloon about a distal region of the shaft and in fluid communication with the lumen, the balloon having a flexible wall comprising an intermediate body, proximal and distal cones, and proximal and distal ends that are respectively adjacent to the proximal and distal cones and attached to the catheter shaft;

forming at least one circumferential groove on the balloon wall between the intermediate body and one of the proximal and distal cones, the at least one circumferential groove mechanically disengaging the one of the proximal and distal cones from the intermediate body allowing each to move differently in a radial direction wherein said at least one circumferential groove is present in both an inflated state and a deflated state, and ~~said first circumferential groove has~~ imparts a smaller diameter to the balloon than that of ~~the~~ does the intermediate body, ~~and that of the respective cone,~~ when the balloon is in ~~an~~ the inflated state;

collapsing the balloon around the catheter shaft; and

mounting a balloon expandable stent in a radially compressed configuration around the intermediate body of the balloon.

Claim 16 (previously presented): The method of claim 15, wherein mounting the stent further comprises holding the stent in the radially compressed configuration while inflating the proximal and distal cones to create dams to retain the stent on the balloon.

Claim 17 (original): The method of claim 16 further comprising:
heat setting the balloon to produce a shape memory therein of the dams formed in the proximal and distal cones.

Claim 18 (original): The method of claim 15 further comprising:
at least partially filling the at least one circumferential groove with a flexible material that is adhered to the balloon.

Claim 19 (previously presented): The balloon of claim 1 further comprising at least a second circumferential groove formed in the balloon wall between the other of the proximal end and distal end of the stent and the other of said proximal and distal cone for mechanically disengaging the other cone from the intermediate body.

Claim 20 (previously presented): The method of claim 15 wherein the step of forming is performed prior to the step of mounting.